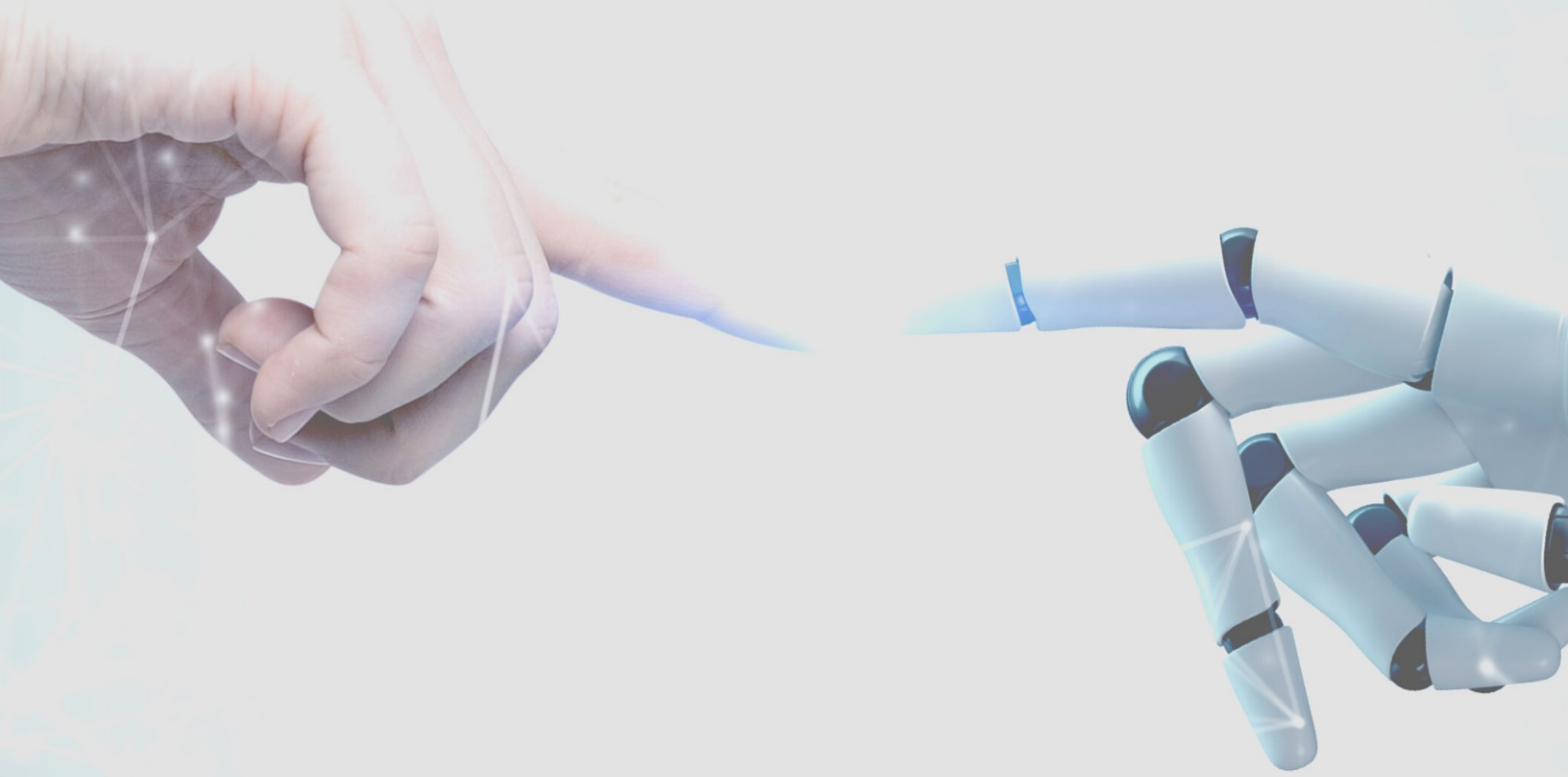
CSA4002 DR. DURGA PRASAD

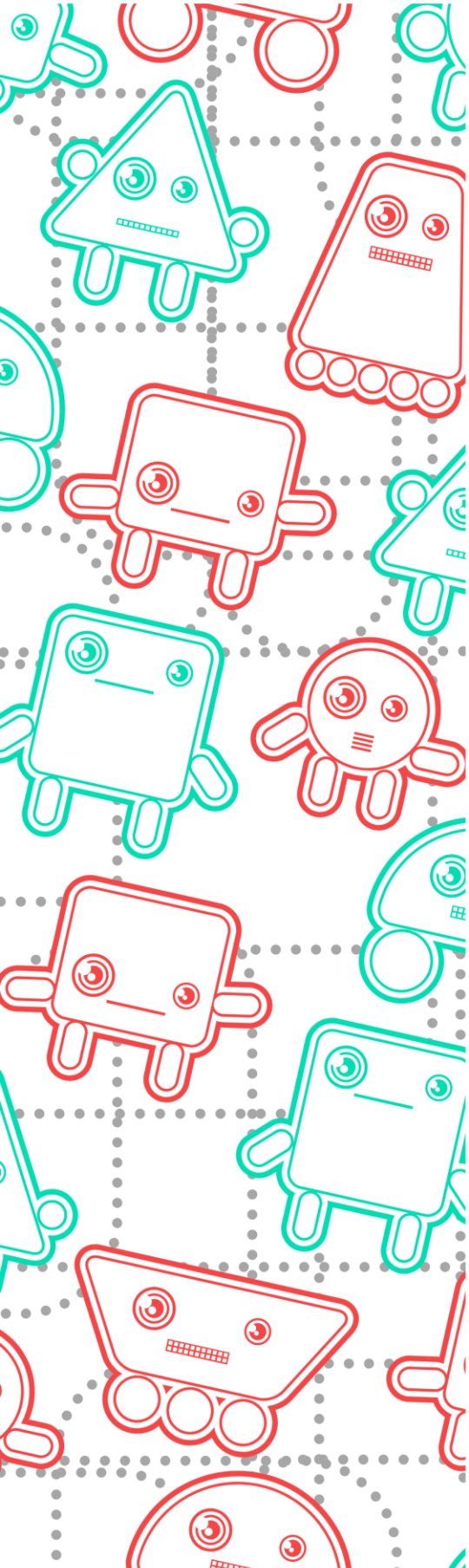
HANDS ON lobe



PREPARED BY

AAKASH MATTOO

19BAI10152



ABOUT lobe

Lobe is generally used for training the machine learning models. It is a free, easy to use tool.

It is quite convenient to use as it has simplified the **machine learning** process into three easy steps.

- Collecting and labelling images.
- Training the model and analysing results.
- Play, test, improve the model.

aim

We have to use the lobe machine learning tool and need to train two different models having binary classification as well as multiclass classification.

procedure

We need to follow the following procedures to get desired results :

1. We need to collect bursts of images using our webcam, or drag in a folder of images from the computer and quickly label images to create a machine learning dataset.

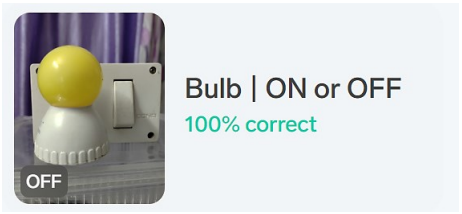
2. Thereafter, the model automatically trains itself on our computer without any setup or configuration. We need to understand the strengths and weaknesses of your model with live visual results.

3. Use the trained model with a webcam or images from your computer. Improve your results by giving your model feedback on its predictions, then finally export it wherever needed.

results

Using the above procedure to work upon the binary classification and thereafter we need to do the same training for the multiclass classification. We just need to show examples of what you want it to learn, and it automatically trains a custom machine learning model.

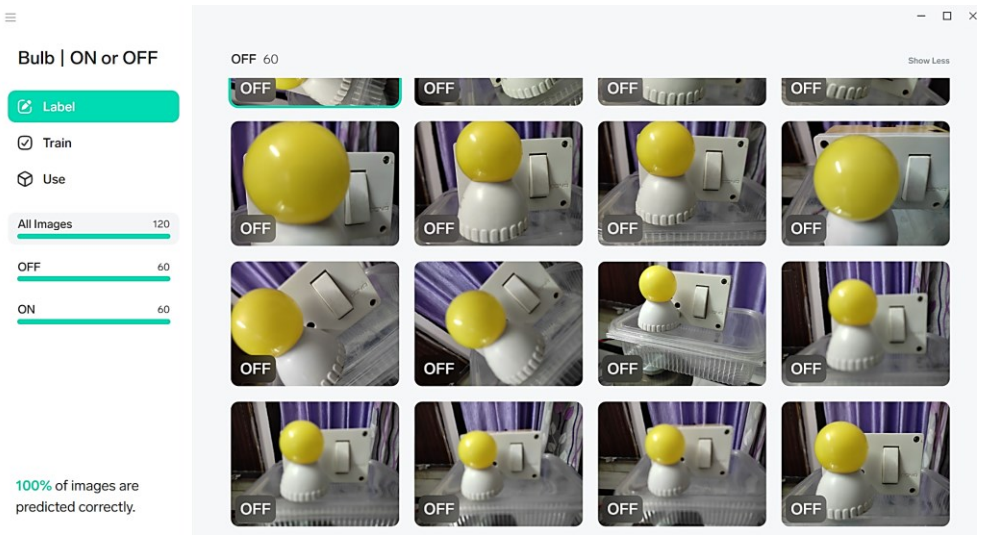
binary classification

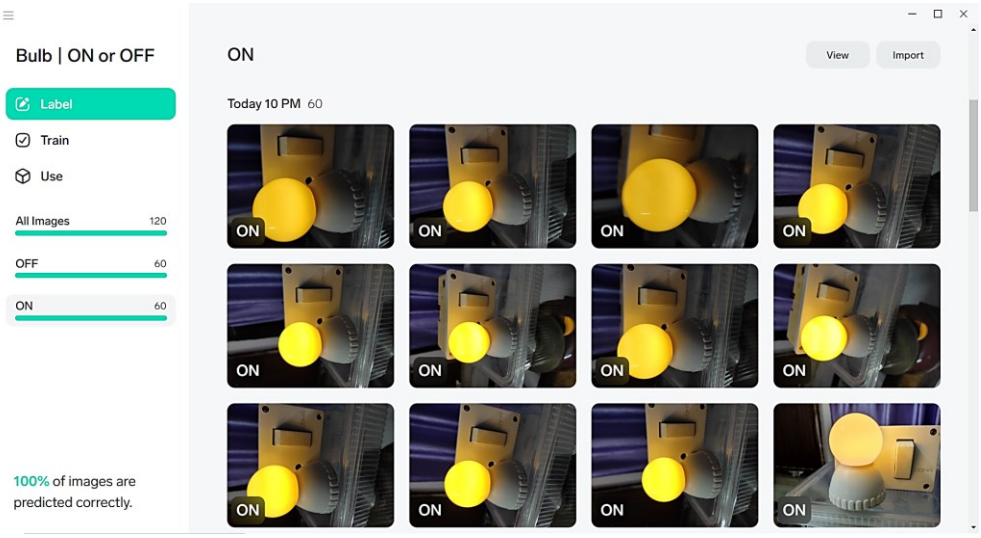


Binary classification refers to those classification tasks that have **two class labels**. It generally involves one class that is the *normal state* and another class that is the *abnormal state.*

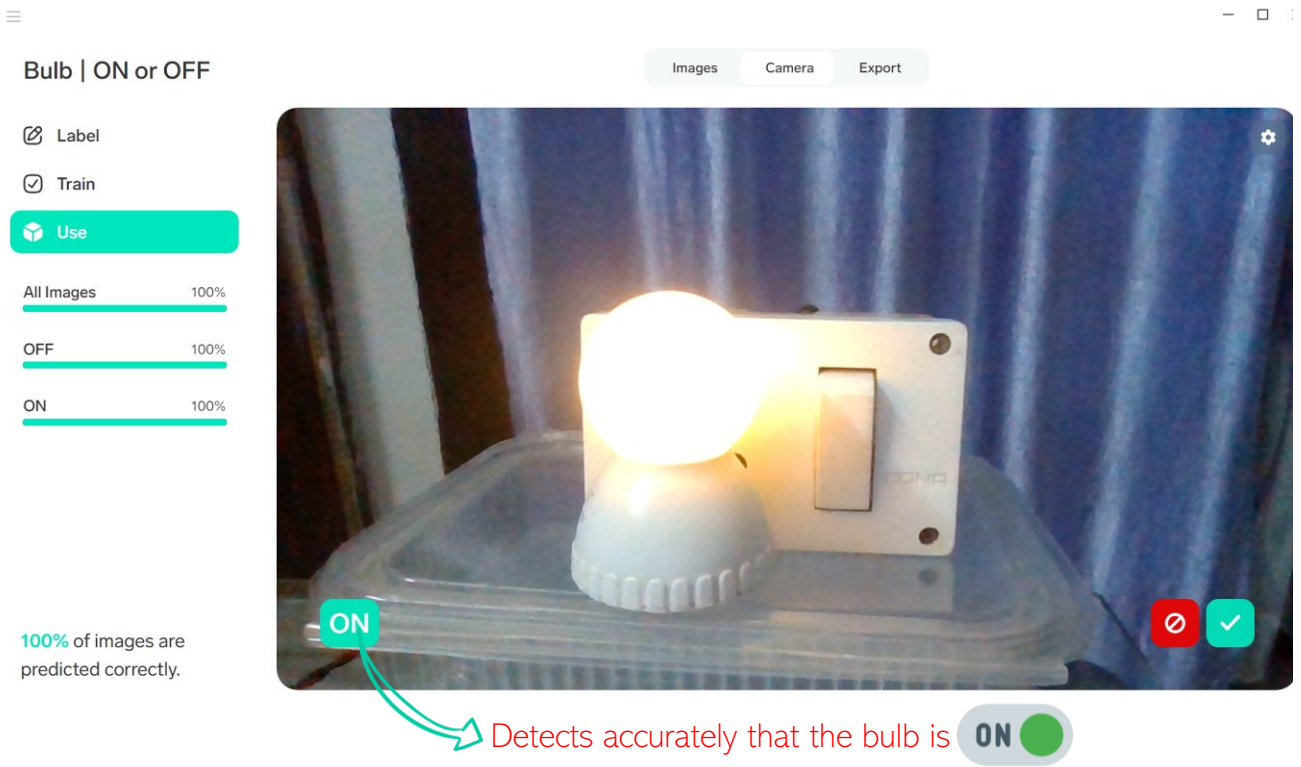
So, for the above classification we have chosen a dataset which consists two types of images. We are training over model so that it can detect whether the Bulb is ON or OFF.

We have trained the model with approximately, 60 images from each of the two classes and the dataset contains a total of *120 images.*

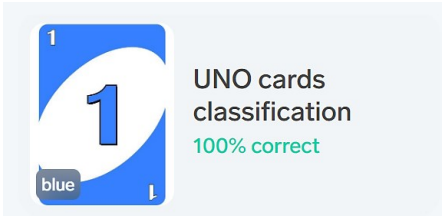




Now, the model is trained and predicts the images with 100% accuracy. We will test, play and analyse our model.



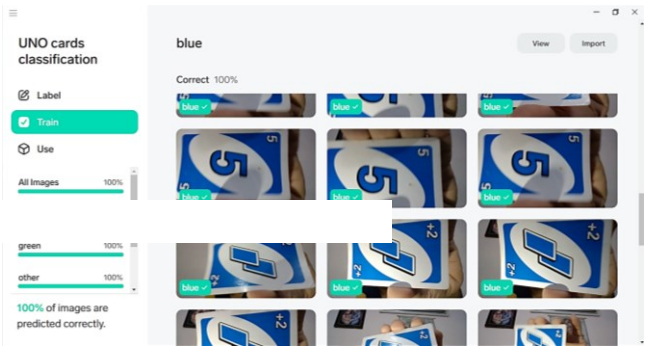
multi class classification

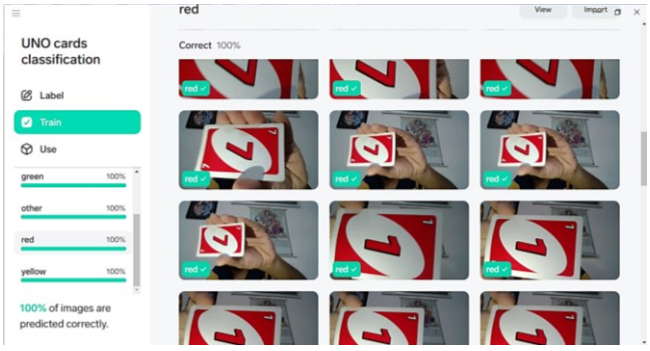


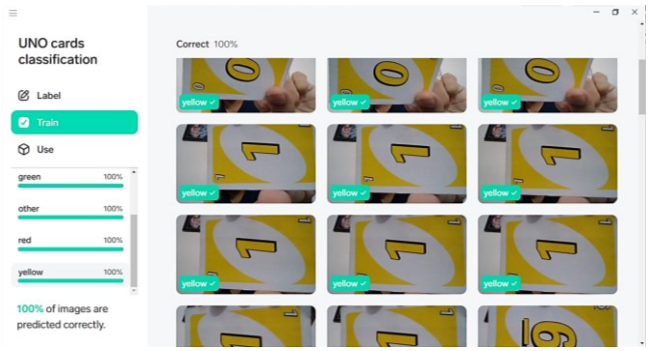
Multi-class classification refers to those classification tasks that have **more than two class labels.** Unlike binary classification, examples are classified as belonging to one *among a range of known classes*. The number of class labels may be very large on some problems.

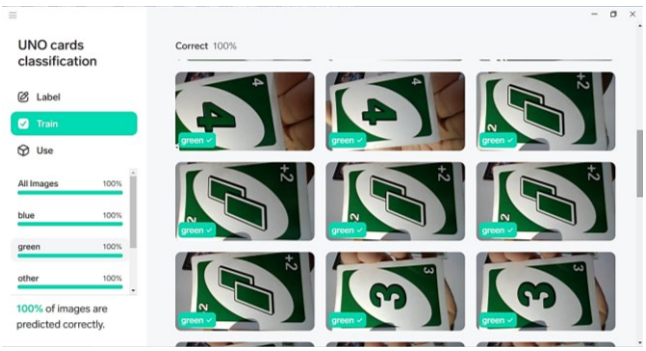
So, for the above classification we have chosen a dataset which consists of variety of UNO cards. We are training over model so that it can detect the colours of different cards into **red, blue, green, yellow** and **other.**

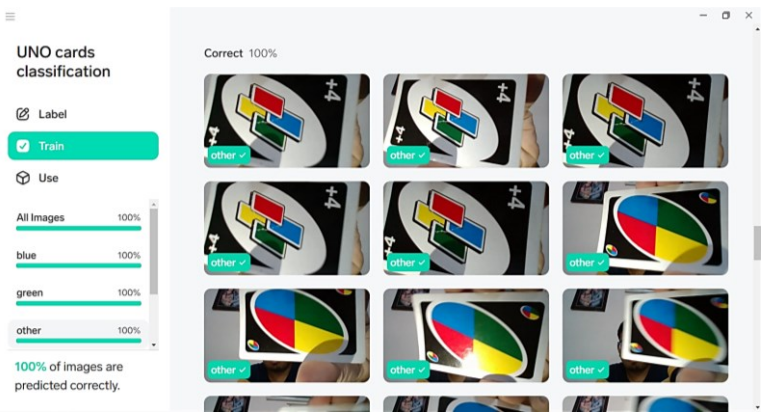
We have trained the model with approximately, 60 images from each of the five classes and the dataset contains a total of *350+ images.*











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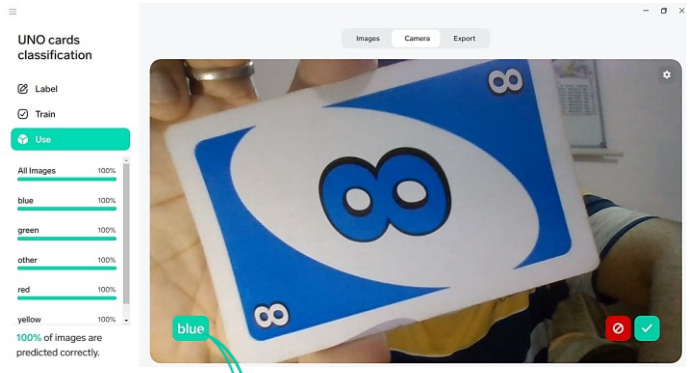
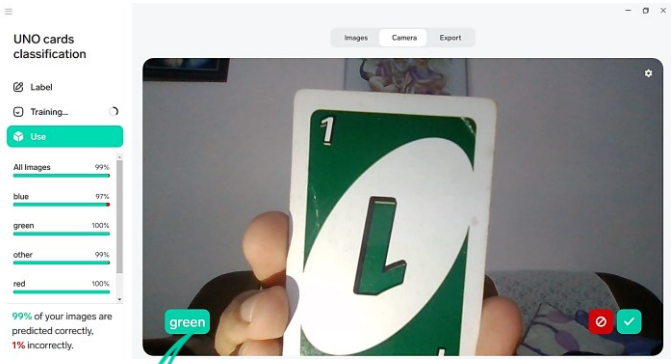
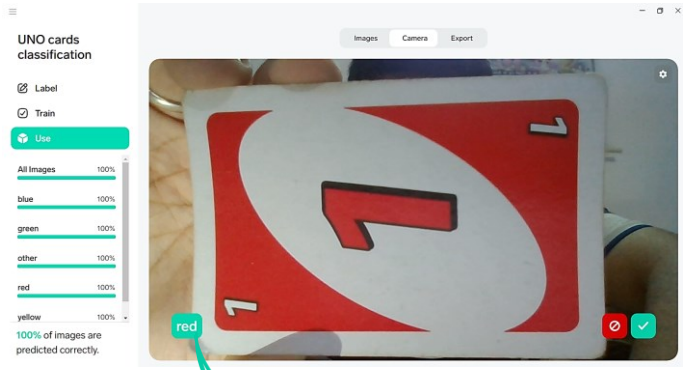


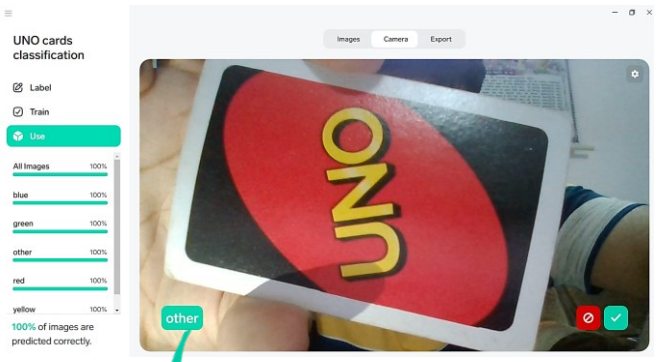
Detects accurately the colour of card as BLUE.



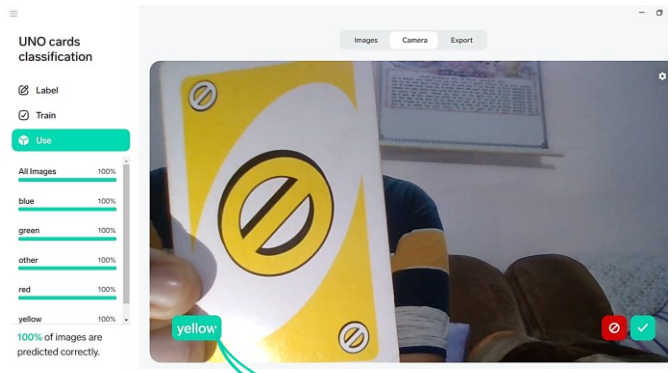
Detects accurately the colour of card as GREEN.



Detects accurately the colour of card as RED



Detects accurately the card as OTHER.

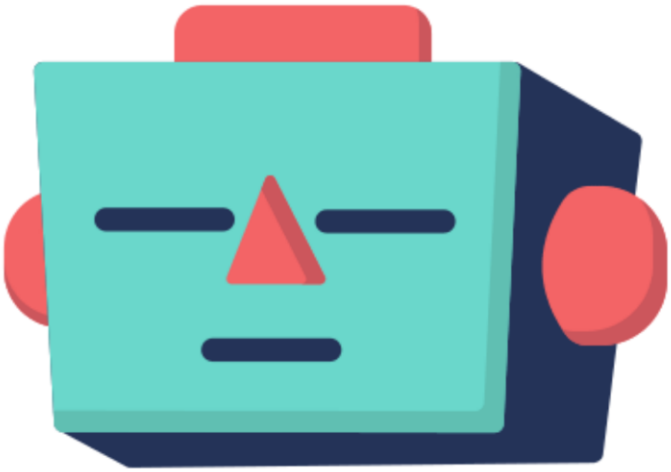


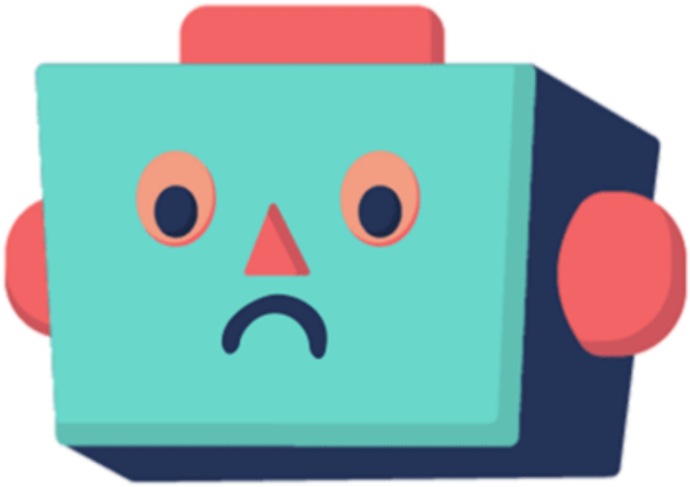
Detects accurately the colour of card as YELLOW.


VIDEO
DEMONSTRATION
Click to View

Artificial Neural Networks

lobe





submitted by

Aakash Mattoo

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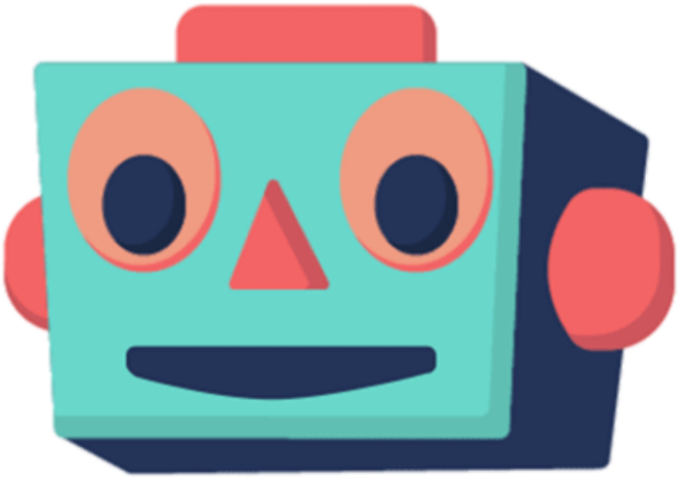

submitted to

Dr. **Durga Prasad**

submitted on

September 11, 2021